

# Meeting Notes

## Statewide Water Analysis Network Workshop

### California Water Plan Water Portfolios Methods Describing Current Water Conditions in California

Monday September 24<sup>th</sup>, 2007  
9:30 a.m. – 3:30 p.m.

#### General Questions

- 1) What is the one key deliverable DWR would like to see SWAN accomplish?

DWR is interested in working with SWAN to develop a strategy for implementing specific and reasonably accurate quantitative deliverables in support of the California Water Plan. The strategy will use Shared Vision Planning principles to promote collaboration between technical and policy experts (See <http://www.svp.iwr.usace.army.mil>). The strategy must include both short-term deliverables for Update 2009 and longer term deliverables.

- 2) Elaborate on what DWR would like to see in the Water Portfolios related to groundwater.

Ultimately, DWR is interested in including a complete water balance for each groundwater basin as part of the Water Portfolios. This is difficult to do because many basins lack detailed information and developing a groundwater balance is very expensive. This will require partnerships and cost sharing between DWR and the local agencies managing the groundwater basins.

- 3) What can DWR do now to standardize data submitted for urban water management plans, so it can be used to support the Water Plan?

Through SWAN, DWR is pursuing a pilot project to evaluate how data submitted for urban water management plans can be more effectively used in the Water Plan. See the following link for more information on this Pilot Study:

<http://www.waterplan.water.ca.gov/swan/index.cfm>

- 4) What are the insights you are trying to get from Water Portfolios besides just reporting the information? For example, it looks like instream flow requirements are higher in some years than the actual flow.

The Water Portfolios are intended to accurately represent current water conditions in California. They describe where water supplies come from and how water supplies are distributed among urban, agricultural, and environmental uses. Water Portfolios also describe water demands unique to a region and ongoing local projects, activities, and plans to meet these changing water demands. DWR is interested in working through

SWAN and the Water Plan Advisory Committee to develop specific technical and policy insights from Water Portfolio data.

- 5) What are the legal requirements for reporting well log information?

The requirements for reporting water well drilling information are set forth in CWC section 13751. For more information see:

[http://www.dpla2.water.ca.gov/publications/groundwater/ca\\_water\\_laws\\_2003.pdf](http://www.dpla2.water.ca.gov/publications/groundwater/ca_water_laws_2003.pdf)

- 6) In traditional engineering we look at what the problem is we are trying to solve and what the alternative solutions are including meeting multiple water management objectives. How do the Water Portfolios support this?

See the response to question 4 above.

- 7) DWR should develop a comprehensive needs assessment that the Water Portfolios can support.

DWR is interested in working through SWAN and the Water Plan Advisory Committee to develop specific technical and policy insights from Water Portfolio data.

- 8) What feedback have you received from the Water Plan regional meetings about the Water Portfolios?

Most of the comments received were indirectly related. These comments related to actual data about a region or sources of data used. They suggested additional sources and emphasized that local input be a focus, including contact with local experts and use of locally generated hydrology studies.

- 9) How does the regional strategic planning by the State Water Resources Control Board overlap with the data needs of DWR?

Much of the focus of SWRCB relates to the impact of water after it has been used or how it should be used. This directly relates to water management or water use, the beneficial use of water, and extending the usefulness of current supply. Tying the interests of both State agencies is the need to understand how water is being used and the need for information to support this understanding. This warrants increased cooperation in the future.

DWR and SWRCB are improving coordination between the State Water Boards' planning with the Water Plan. One overlap being pursued is the State Water Boards Basin Planning efforts and the incorporation of data and information from these efforts into the Water Plan. The State Water Boards are also providing subject matter experts to assist in the update of the Water Plan water management strategies.

10) Where does flood management fit into the Water Portfolios?

Update 2009 is the first Water Plan in which DWR is making a significant attempt to integrate water supply and flood management information. Whether a project is built for water supply or flood control, the supply and use of the effected stream has a direct impact on local water strategies, conveyance and use. The characteristics of the project, how a project is managed, and the decisions behind seasonal releases during weather events can influence how local entities plan recharge operations, structures, and water purchases. In many instances, water portfolios are already including this component.

Staff are still thinking about how to tie flood management information to the Water Portfolios. This may be the subject of a future SWAN workshop.

11) How can the Water Portfolios be used to inform the Water Plan scenarios?

For Update 2005, DWR developed scenarios of future water use that are based in part on some basic information from the Water Portfolios. A stronger connection needs to be made.

12) What is the problem Water Portfolios are trying to solve?

See the response to question 4 above.

Water Portfolio Balances

1) How do you break out Water Portfolio data for the Delta for the Delta Vision Blue Ribbon Task Force?

DWR did not do a separate Water Portfolio for the Delta as part of Update 2005. The Delta Vision Blue Ribbon Task Force work focuses on the legal definition of the Delta contained in the Water Code, which is different from the planning boundaries used for the Water Portfolios. Staff is discussing how a Water Portfolio can be developed using the legal Delta boundary.

2) At what geographic scale is data collected for the Water Portfolios?

Data is *collected* by water agency, crop area and/or urban area then rolled up into larger geographical areas. Data is *reported* by DAU/county for Update 2009 and was reported by Planning Area for Update 2005.

3) Do you do 3 water balances for each DAU/County: Applied water use, Net water use, Depletion?

Yes, but only as checks. Inflow-Outflow Water Routing Balance provides all the components needed for Applied water use, Net water use, & Depletion Balances (cross check). Water balances are currently reported by Planning Area.

- 4) Do you use actual water delivery information?

Yes, where it is available. For example, records on CVP deliveries, other Federal supplies, Colorado River deliveries, SWP deliveries, and local surface deliveries are often available.

- 5) DWR should do sensitivity analysis of Water Portfolio data to see where improved accuracy would make the biggest difference in water balances. How does DWR identify the uncertainty in the information collected for the Water Portfolios and where to focus on improvement of information? What are the error bounds for the results? What would it cost for incremental improvements in accuracy?

There is great variation in the availability of current data for different regions of the state; developed areas tend to have more data, and rural regions have much less. Using DWR's expertise and existing data collection programs, DWR has come up with a water balance template for future Water Plan updates and for the transition/development into Integrated Regional Water Management Planning. DWR's goal is to improve analytical methods and work with federal, State, and local agencies along with water suppliers to improve data collection and decrease current data gaps. DWR is interested in working through SWAN to identify and implement specific data quality control and quality assurance procedures.

- 6) What is the basis of the DAU and how does it relate to integrated regional water management boundaries and the regional flood management boundaries?

History:

In the 1950s DWR used Hydrographic Units (*aerial designation – Bulletin 2*). In the early 1960s DWR used DSA Units (*depletions study areas*). In the early 1970s DWR converted to DAUs and was first shown in Bulletin 160-74. The purpose of the DAU breakout was to make it easier to perform hydrologic balances (*By Basins and by strategically breaking out areas with surface water gages, so DWR could get measured outflows for each study area*). The DAUs are based on drainage basins in the mountains and foothills. On the Central Valley floor, hydrologic areas can be overcome with engineering projects; therefore, DAU lines tend to follow political boundaries, usually of a water purveying district.

- 7) At what geographic scale is Water Portfolio data stored?

For Update 2005, the data is stored by planning area. For Update 2009, the data will be stored by DAU/County.

- 8) Can Water Portfolios be used to study re-operation of existing water management facilities?

Yes, once the data is collected, it can be used to determine demands and supplies by sector and to evaluate the existing system operation.

## Land Use

### 1) How often does DWR conduct land use surveys?

DWR conducts land use surveys every year, surveying between 4 to 6 counties per year. Surveys are repeated most frequently in the north part of the state (Colusa and Butte counties) where each county is surveyed about every 6 years. In the remainder of the state, the frequency between county surveys is closer to 7 to 10 years; although we have a couple counties that we have not surveyed for 20 years.

### 2) How is land use data collected?

**Land Use Surveys:** The data is collected in the field, using recent aerial imagery and laptops, software, and GPS. Nearly every field is visited to positively identify the crop (land use). While we use GPS during the survey, we do not use GPS to actually "mark" field locations.

**Annual Land Use Estimates:** For a specific year, DWR determines crop acreage from a land use survey performed that year if a survey was performed. Otherwise crop acreage is estimated using a combination of previous DWR land use surveys and current county agricultural commissioner crop reports.

### 3) What would it cost to implement remote sensing across the state to determine land use estimates?

DWR prepared a rough proposal for using remote sensing in the Central Valley floor, dividing it into three sections, surveying one section per year. The development costs were more than \$400,000 per year for the first three years, and costing about \$250,000 per year after that. That assumes existing staffing would perform the field work. If larger areas were to be surveyed at a time, the costs would increase.

### 4) How can county agricultural commissioner crop data be better coordinated with DWR's data collection activities, and could remote sensing data support this effort?

There is an opportunity to better coordinate crop data between DWR and agricultural commissioners. Information from agricultural commissioners reports is pieced together from various sources including pest application permits, receipts from grower marketed harvests, and field observations. The reliability of these crop reports has declined over the years as offices have seen a budget squeeze. Some counties have even considered dropping the crop reports during tight years.

The Department of Pesticide Regulation has already invested years of staff time working with county agricultural commissioners to try to standardize their processes and methods to develop spatial pesticide (and crop) information. They were not successful and do not have staff performing this work now. There is an opportunity to develop spatial crop data from DPR's collection of pesticide permit data. The data could be additional information used by DWR in estimating annual crop estimates.

- 5) Have you compared remote sensing land use data to actual land use surveys, and how accurate is the remote sensing land use data?

The U.S. Bureau of Reclamation (USBR) has been successfully employing remote sensing with its LCRAS program in the Lower Colorado Region for more than a decade. Accuracies of crop identification are 90% or more. Any misidentifications or confusion are between crop types that have similar water uses.

DWR performed one remote sensing survey -- in Sutter County in 2005. DWR did not perform at a land use survey in Sutter County that year to compare to. However, using information from earlier surveys, the initial work resulted in crop identification accuracies of 75% overall, with confusion of crops with similar water use characteristics. DWR is confident that refining crop signatures in the survey would match the accuracies achieved by USBR. In terms of county-wide water use, these crop identification inaccuracies resulted in a difference of only 2% of total applied water.

### Water Use

- 1) How do Public Water Supply Surveys show geographic coverage of data?

The PWSS contain water production and delivery data by water agency. They are just data provided on paper or electronic forms. They do not provide maps (paper or digital) of the actual area to which they supply water. We do know what county and DAU they serve. Having digital water service boundaries would enhance this effort: We could be certain of their delivery areas and could use census data to develop a more reliable population served (which is a weak point in the PWSS data).

- 2) Do the Water Portfolios consider new crops types that have higher ET rates, but are more productive? Is DWR consulting with counties and agencies regarding crop coefficients?

Staff keeps aware of new findings concerning crop water use. Usually, either the U.S. Department of Agriculture or the UC Cooperative Extension performs various degrees of field studies. DWR staff will change crop ET rates (i.e. change crop coefficients) when they are confident that the numbers were developed in a scientific manner and that the crop or the crop's cultural practices (which results in higher water use) are predominate or the norm for that area.

- 3) Is water use data verified against on-field collections?

DWR obtains water use data from farmers, water districts, farm advisers, universities, consultants, and wildlife refuge managers. DWR itself has not collected applied water by field for many years due to budget reductions. Applied water studies would greatly enhance DWR's ability to accurately develop crop applied water numbers, but it comes at a high cost (requiring dedicated staff and a lot of cooperation with local water agencies).

- 4) Does the Ag model look at how soil type can affect runoff of applied water?

The Ag model uses soil type data to estimate infiltration and runoff of precipitation to estimate effective precipitation. It does not estimate runoff of applied water.

- 5) Is DWR working with the Natural Resources Conservation Service to get information on private wetlands water use?

No. We depend on our contacts with National Wildlife Refuges, Wildlife Areas, Ducks Unlimited, Central Valley Joint Venture, and our land use surveys for private wetlands. DWR's goal is to improve analytical methods and work with federal, state, and local agencies along with water suppliers to improve data collection and decrease current data gaps. An important goal is to increase data sharing (*communication*) and eventually have a one-stop-shopping capacity.

- 6) Does DWR estimate water use for coastal wetlands and brackish water wetlands?

No. DWR's Water Portfolio analysis is focused on fresh water habitats. Coastal wetlands and brackish water wetlands need to be identified geographically (GIS). These layers will provide great information for future analysis and regional planning.

- 7) Do Water Portfolios track water use associated with flood easements on private land used for seasonal wetlands?

DWR depends on contacts with National Wildlife Refuges, Wildlife Areas, Ducks Unlimited, and Central Valley Joint Venture, and DWR's own land use surveys for private wetlands, which includes flood easements on private land for seasonal wetlands.